

2001 DPS Meeting abstract submission

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Jovian Longitudinal Thermal Structure in mid 1999

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We report on observations of Jupiter taken at wavelengths in the mid-infrared sensitive to tropospheric emission. The observations were made during three periods in 1999: June/July, August, and October. The observations were taken at the NASA IRTF using the MIRLIN infrared camera. Longitudinal structure, particularly in the north equatorial belt (NEB), is examined in detail. Certain features appear to persist over the three month span of the data, although considerable variability is seen. Several persistent features in the NEB are found to rotate at a speed of approximately -9 m/s with respect to the System III rate. Other features either rotate at different speeds or have evolved between the observational epochs. Very little consistency between observing epochs is seen in the longitudinal power spectrum of the NEB. The Great Red Spot (GRS) rotates at a speed of -3 m/s with respect to System III, while the white ovals a few degrees to the south rotate at +2 m/s. South equatorial belt (SEB) longitudinal structure is more muted and shows fewer small warm features in comparison to the NEB. No obvious correlations are seen between longitudinal structures in the NEB and SEB. Rotation of features in the SEB appear to be similar to the rotation of the GRS. This work was performed at the Jet Propulsion Laboratory, California Institute of Technology, under contract with NASA, and supported in part by the NASA Planetary Astronomy Program and the Galileo Project.

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